

Device for measuring the internal diameter of a pipe ~~with inspection camera~~

## **BACKGROUND OF THE INVENTION:**

### **Field of the invention:**

More particularly, the present invention relates to a device being ~~fixed to an inspection camera~~ used for measuring the internal diameter of a pipe.

### **Description of the related art:**

A search of prior art records has unveiled the following patents:

1. CA 2,046,492 registered in 1991 to Barski;
2. CA 1,134,872 issued in 1982 to Passamoni;
3. CA 2,218,436 registered in 1942 to Wiercienski;
4. CA 512,624 issued in 1955 to Bissell;
5. CA 438,857 issued in 1946 to Levin;
6. CA 2,074,640 registered in 1992 to Rafilipomanana; and
7. CA 2,278,046 registered in 1997 to Prakken.

As can be seen the patents mentioned above are probably the most relevant.

### **Summary of the invention:**

It has been discovered that the present invention described herein allows to measure the internal diameter of a pipe, ~~with an inspection camera~~ which includes a tape mounted into a flat elongated body having holes to allow a

string to be pulled out of a flat elongated body. The tape includes hole at a first end for connecting a first end of an elastic band and the string to the tape.

The flat elongated body includes a tongue having hole for connecting a second end of the elastic band. The string pulls the tape out of the flat elongated body for measuring the internal diameter of the pipe.

Still, the tape includes also hole at a second end for connecting a circular member keeping the device at a right angle in bottom of the pipe when reading the diameter of the pipe with the inspection camera, and also blocking the tape at the input of the flat elongated body when the elastic band bringing the tape into the elongated body.

A metal part is disposed between the flat elongated body and a wire of the inspection camera for keeping the device in bottom of the pipe.

A multitude of mechanical fasteners are mounted to the flat elongated body for fastening the inspection camera, and for extending the flat elongated body one can connected an extension body at one end of the flat elongated body.

**Brief description of the several views of the drawing(s):**

Figure 1 is a perspective view of a device being fixed to an inspection

~~camera~~ used for measuring the internal diameter of a pipe -as shown in phantom lines-;

Figure 2 is a perspective view of the device being used for measuring the internal diameter of a pipe;

Figure 3 is a front view thereof; and

Figure 4 is an exploded view thereof.

**Detailed description of the invention:**

Referring to ~~the drawings~~ figs. 1 to 4, a device (A) being ~~fixed to an inspection camera~~ used for measuring the internal diameter of a pipe, which comprises a tape (1) mounted into a flat elongated body (4) having holes (9) ~~enabling to allow~~ to a string (3) to be pulled out of the elongated body (4). The tape (1) ~~having~~ includes hole (11) at ~~one~~ a first end for using a means (12) connecting ~~the~~ a first end of an elastic band (2) and ~~the~~ string (3) to the tape (1). The flat elongated body (4) ~~has at one end~~ includes a tongue having hole (10) ~~in which is connected for connecting the other~~ a second end of the elastic band (2). The string (3) ~~pulling~~ pulls the tape (1) out of the flat elongated body (4) for measuring the internal diameter of the pipe ~~with the inspection camera, and thereafter an elastic band (2) bringing the tape (1) into the elongated body (4).~~

Still, the tape (1) includes also hole at a second end for connecting A a  
circular member (6) ~~is connected at the other end of the tape (1)~~ for keeping  
the device at a right angle in bottom of the pipe when reading the diameter  
of the pipe with the inspection camera, and ~~for~~ also blocking the tape (1) at  
the input of the flat elongated body (4) when the elastic band (2) bringing  
the tape (1) into the elongated body (4).

A metal part (7) is disposed between the elongated body (4) and a wire of  
the inspection camera for ~~holding~~ keeping the device (A) in bottom of the  
pipe.

A ~~multitude~~ plurality of ~~pieces~~ mechanical fasteners (5) are mounted to the  
flat elongated body (4) for fastening the inspection camera -as shown in  
phantom lines-, and for extending the flat elongated body (4) one can  
connected An an extension body (8) ~~is connected to~~ at one end of the flat  
elongated body (4) (see fig. 1).

Although only a single embodiment of the present invention has been  
described and illustrated, the present invention is not limited to the features  
of this embodiment, but includes all variations and modifications within the  
scope of claims attached hereto without departing from the spirit of the  
invention.

**CLAIM(S):**

The embodiments of the invention for which an exclusive property or privilege is claimed, are defined as follows:

1) Claim 1 has been canceled:

[1. ~~A device being fixed to an inspection camera for measuring the internal diameter of a pipe, said device comprising:~~

~~a tape mounted into a flat elongated body having holes enabling to a string to be pulled out of the flat elongated body,~~

~~the string pulling the tape out of said flat elongated body for measuring the internal diameter of the pipe with the inspection camera,~~

~~an elastic band bringing said tape into said flat elongated body,~~

~~the flat elongated body includes at one end a tongue having hole in which is connected the other end of said elastic band,~~

~~an extension body is connected to one end of said elongated body,~~

~~a multitude of pieces are mounted to said flat elongated body for fastening the inspection camera, and~~

~~a metal part is disposed between said elongated body and a wire of the inspection camera for holding the device in bottom of the pipe.]~~

2) Claim 2 has been amended as follows:

~~--2. (amended) The tape according to claim 1~~ A device for measuring the internal diameter of a pipe, wherein said device comprising:

means for fastening the device to an inspection camera;

a tape mounted into a flat elongated body having holes to allow a string to be pulled out of a flat elongated body,

the tape having a first end and a second end,

wherein said tape having hole at one the first end for using a means connecting said a first end of an elastic band and the string to said tape, and

wherein the flat elongated body includes a tongue having hole for connecting a second end of the elastic band,

wherein said string pulls said tape out of said flat elongated body for measuring the internal diameter of the pipe,

wherein said tape having hole at the second end for connecting a circular member is connected at the other end of said tape for keeping the said device at a right angle in bottom of the pipe when reading the diameter of the pipe with the inspection camera, and for also blocking said tape at the input of said flat elongated body when said elastic band bringing said tape into said elongated body [(.)] ;

means for keeping said device in bottom of the pipe; and

means for extending said flat elongated body. --.

3) New claims 3-5 have been added as follows:

--3. (new) The device according to claim 2, wherein said means for fastening said device to an inspection camera comprises a plurality of mechanical fasteners mounted to said flat elongated body, --.

--4. (new) The device according to claim 2, wherein said means for keeping said device in bottom of the pipe comprises a metal part disposed between said flat elongated body and a wire of the inspection camera. --.

--5. (new) The device according to claim 2, wherein said means for extending said flat elongated body comprises an extension body connected at one end of said flat elongated body, --.

Device for measuring the internal diameter of a pipe ~~with inspection camera~~

**ABSTRACT OF THE DISCLOSURE:**

~~The present invention is a~~ A device being used for measuring the internal diameter of a pipe with inspection camera, which including a tape mounted into a flat elongated body having holes to allow a string to be pulled out of the flat elongated body. The tape includes hole at a first end for connecting a first end of an elastic band and the string to the tape. The flat elongated body includes a tongue having hole for connecting a second end of the elastic band. The string pulls the tape out of the flat elongated body for measuring the internal diameter of the pipe. The tape includes also hole at a second end for connecting a circular member keeping the device at a right angle in bottom of the pipe when reading the diameter of the pipe with the inspection camera, and also blocking the tape at the input of the flat elongated body when the elastic band bringing the tape into the elongated body.



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Amdt. dated August 26, 2004  
Reply to Office action of June 04, 2004

**Amendments to the Claim:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (canceled)

Claim 2 (amended): ~~The tape according to claim 1~~ A device for measuring the internal diameter of a pipe, wherein said device comprising:

means for fastening the device to an inspection camera;

a tape mounted into a flat elongated body having holes to allow a string to be pulled out of a flat elongated body.

the tape having a first end and a second end.

wherein said tape having hole at one the first end for using a means connecting said a first end of an elastic band and the string to said tape, and

wherein the flat elongated body includes a tongue having hole for connecting a second end of the elastic band.

wherein said string pulls said tape out of said flat elongated body for measuring the internal diameter of the pipe.

wherein said tape having hole at the second end for connecting a circular member is connected at the other end of said tape for keeping the

said device at a right angle in bottom of the pipe when reading the diameter of the pipe with the inspection camera, and ~~for~~ also blocking said tape at the input of said flat elongated body when said elastic band bringing said tape into said elongated body [[.]] :

means for keeping said device in bottom of the pipe; and

means for extending said flat elongated body. --

Claim 3 (new): The device according to claim 2, wherein said means for fastening said device to an inspection camera comprises a plurality of mechanical fasteners mounted to said flat elongated body.

Claim 4 (new): The device according to claim 2, wherein said means for keeping said device in bottom of the pipe comprises a metal part disposed between said flat elongated body and a wire of the inspection camera.

Claim 5 (new): The device according to claim 2, wherein said means for extending said flat elongated body comprises an extension body connected at one end of said flat elongated body.

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**REMARKS/ARGUMENTS**

In the specification, at pages 1-4, the matter has been deleted and added for enabling a clear and concise language.

In the Abstract of the disclosure, lines 1-43, the matter has been deleted and added for enabling a clear and concise language.

Claim 1 has been canceled in this application. Claim 2 has been amended in this application. Claims 3-5 have been added in this application.

Figures 1, 3 and 4 have been modified to indicate the graduation indicia.

Respectfully submitted,  
by   
Mr. Normand Coulombe, inventor

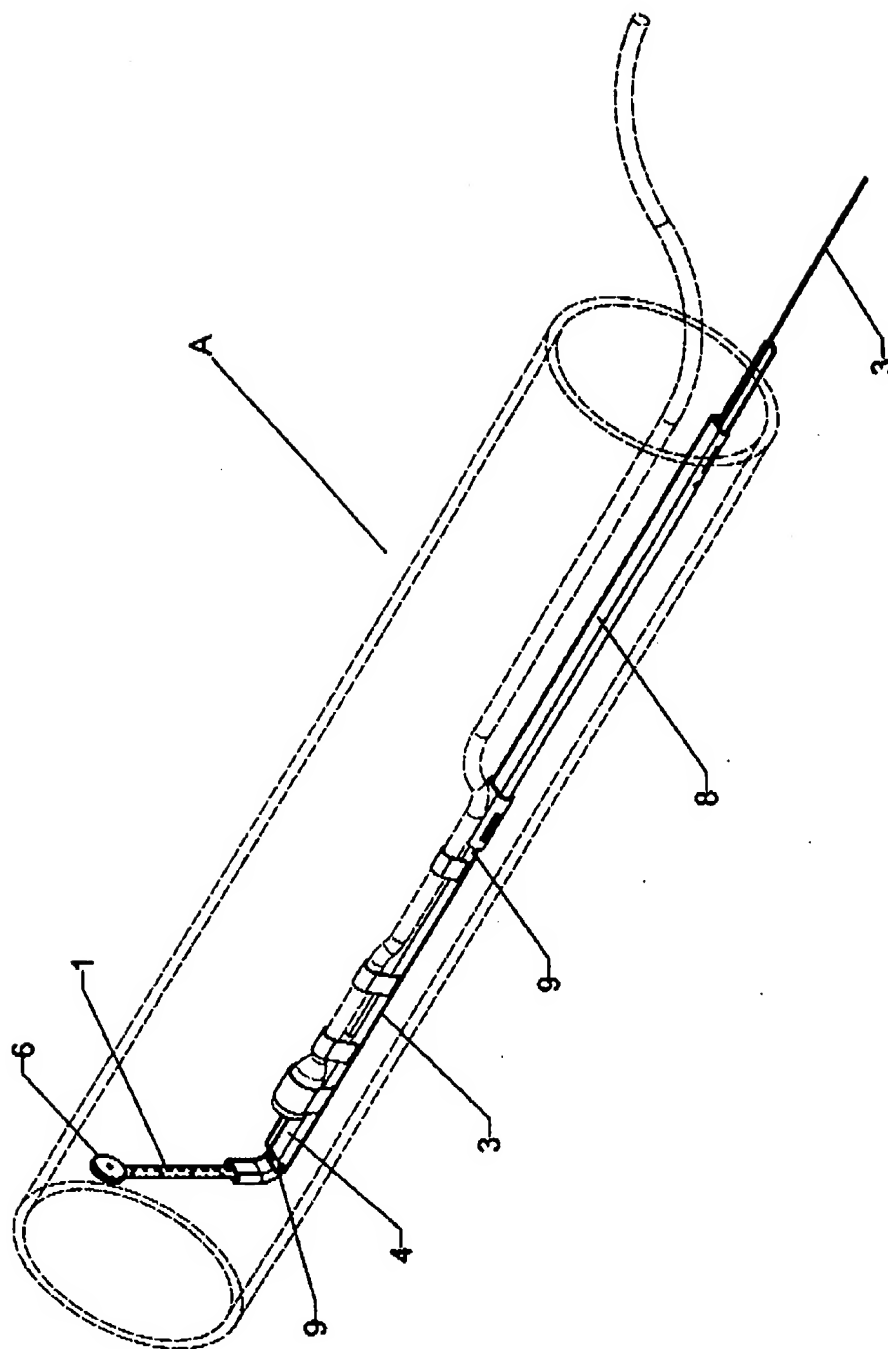


Figure 1

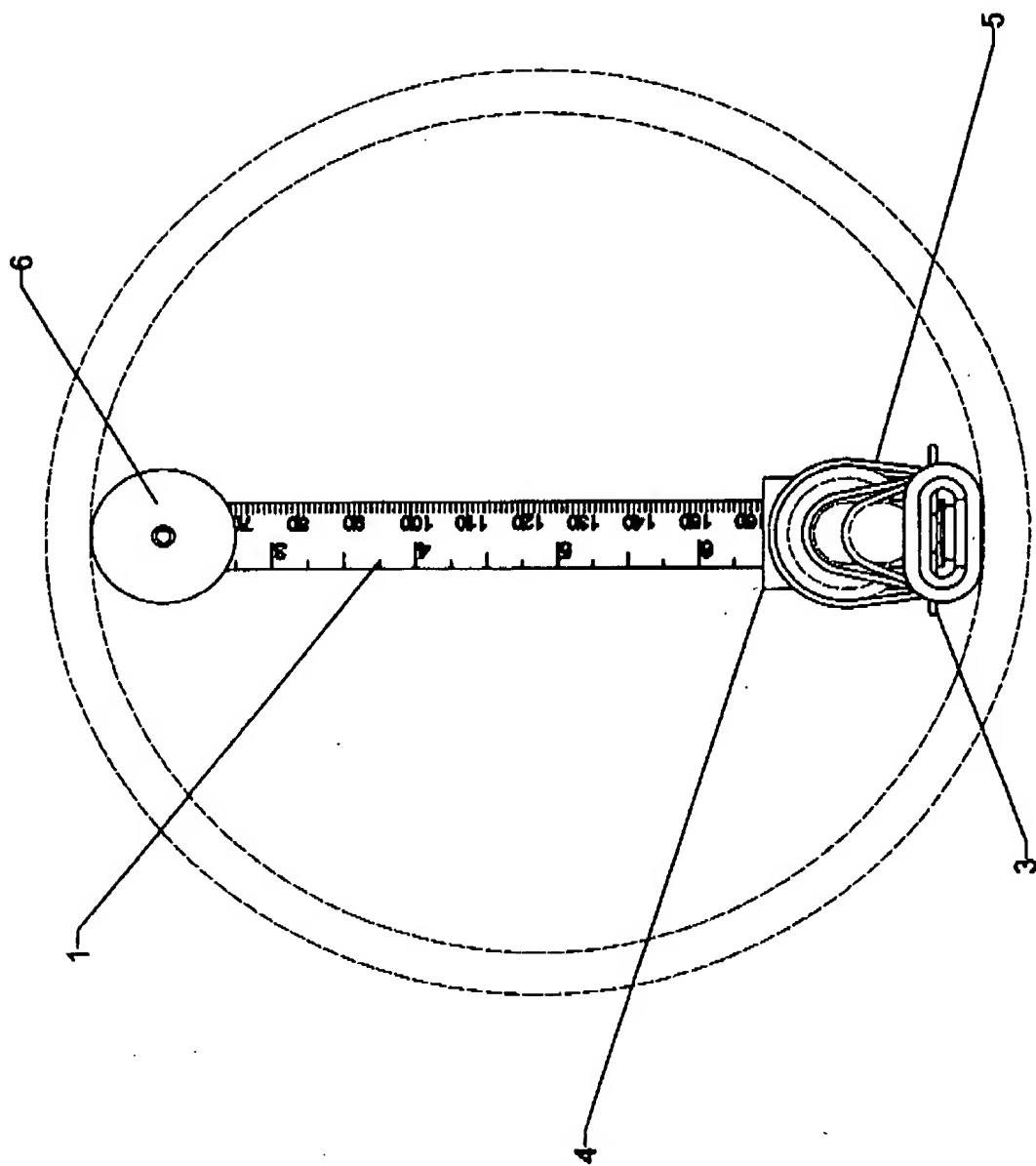


Figure 3

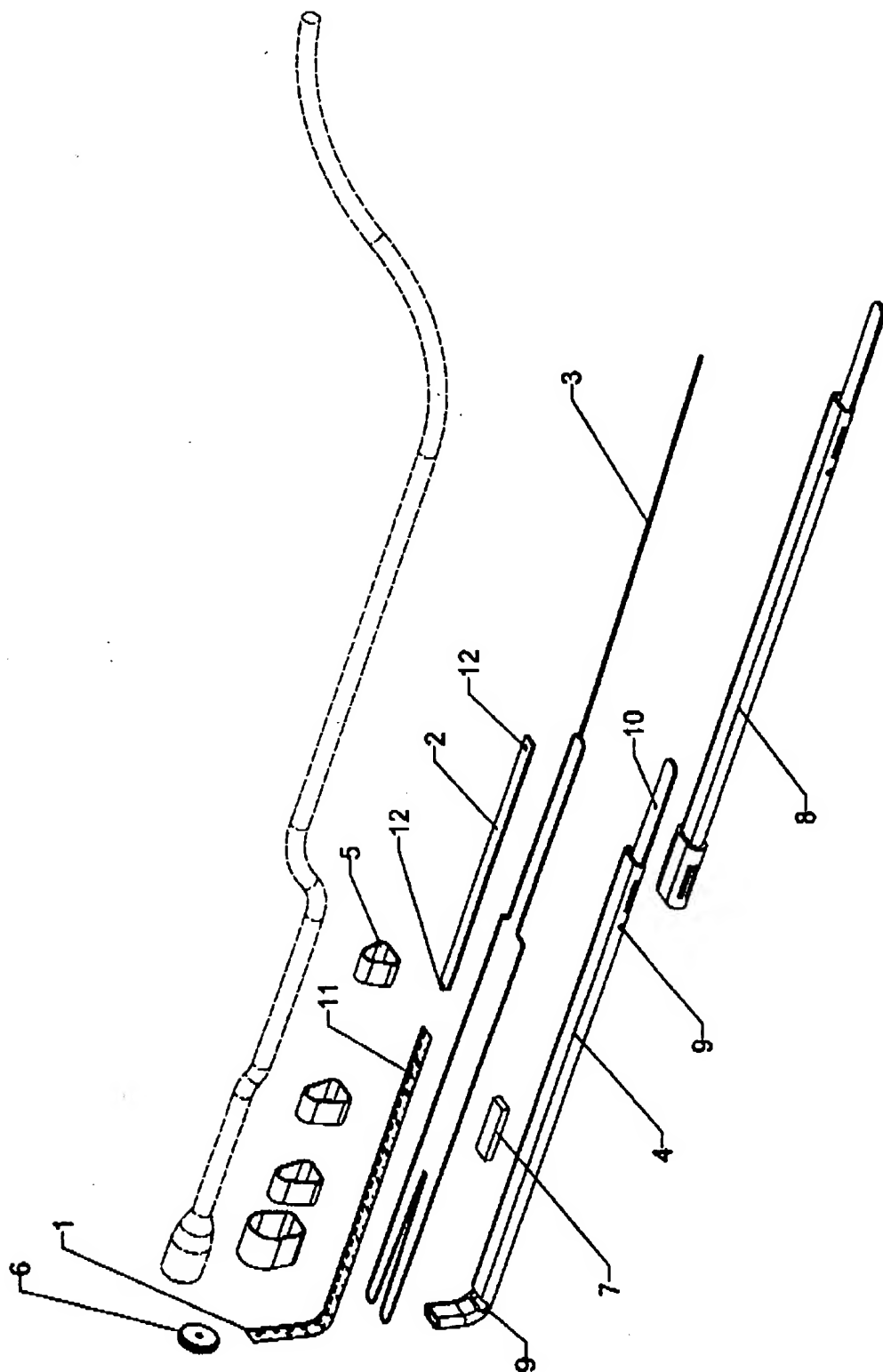


Figure 4